

Repetitive progressive axial displacement pattern for phacoemulsifier needle tip

Abstract

A method to improve phacoemulsification efficiency by providing bursts of axial ultrasonic activity in synchronization with a fraction of a lower frequency axial oscillatory activity, the fraction corresponding to the portion of the low frequency signal that displaces toward the lens fragments and distally from the phacoemulsification hand-piece. Ultrasonic bursts synchronized with displacement of the phacoemulsification needle tip toward the lens tissue increases efficiency allowing the reduction of the required ultrasonic power minimizing heat generation and cavitation.